REMARKS

I. Introduction

With the cancellation herein without prejudice of claims 22 to 25 and the addition of claim 26, claims 9 to 21 and 26are pending in the above-captioned application. In view of the foregoing amendments and the following remarks, it is respectfully submitted that all of the presently pending, elected claims are allowable, and reconsideration is respectfully requested.

II. Rejection of Claims 9 to 21 Under 35 U.S.C. § 103(a)

Claims 9 to 21 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of allegedly admitted prior art ("AAPA") and U.S. Patent No. 4,321,010 ("Wilkinson et al."), U.S. Patent No. 4,589,478 ("Wunder") or U.S. Patent No. 5,600,950 ("Ottenschlaeger"). It is respectfully submitted that the combination of the AAPA and Wilkinson et al., Wunder or Ottenschlaeger does not render unpatentable the present claims for at least the following reasons.

As an initial matter, the Office Action does not identify what portion of the description appearing on pages 1 to 3 of the Specification is being relied upon. Clarification is therefore respectfully requested.

Claim 9 relates to a process for producing one of (a) half-tubes and (b) a tube of a metallic, high-temperature-resistant material with a plurality of openings passing through a surface of the one of (a) the half-tubes and (b) the tube for fabricating heat-exchanger tubes for a recuperative waste gas heat exchanger, including: forming a model, destroyable by heat, of each of the one of (a) the half-tubes and (b) the tube; forming a mold shell by finishing with a conventional gate system and immersion of the model in a ceramic coating composition and sanding with a cast shell ceramic material, alternating in several cycles; melting-out of the model from the mold shell; hardening the mold shell by firing; producing a melt from the metallic, high-temperature-resistant material; casting the melt in the mold shell one of (a) by applying a vacuum and (b) under excess pressure of an inert gas; removing, after solidification of the melt, the one of (a) the half-tubes and (b) the tube from the mold by destroying the mold shell; cleaning and trimming the one of (a) the half-tubes and (b) the tube and removing a sprue; and post-treating, as necessary, the opening passing through the surface of the one of (a) the half-tubes and (b) the tube by one of (a) spark erosion and (b) blasting with an abrasive blasting agent.

Claim 9 has been amended herein without prejudice to correct a typographic error to change "the opening" to --the openings--.

The Office Action contends that the AAPA "substantially shows the invention as claimed except that it shows to form openings in the surface of the half-tubes by EDM after the half-tubes are manufactured." This contention is untenable. In this regard, pages 1 to 3 of the Specification do not disclose, or even suggest, at least (a) forming a model, destroyable by heat, of each of one of (a) half-tubes and (b) a tube; (b) forming a mold shell by finishing with a conventional gate system and immersion of the model in a ceramic coating composition and sanding with a cast shell ceramic material, alternating in several cycles; (c) melting-out of the model from the mold shell; (d) hardening the mold shell by firing; (e) producing a melt from a metallic, high-temperature-resistant material; (f) casting the melt in the mold shell one of (a) by applying a vacuum and (b) under excess pressure of an inert gas; (g) removing, after solidification of the melt, the one of (a) the half-tubes and (b) the tube from the mold by destroying the mold shell; (h) cleaning and trimming the one of (a) the half-tubes and (b) the tube and removing a sprue; and (i) post-treating, as necessary, the opening passing through the surface of the one of (a) the half-tubes and (b) the tube by one of (a) spark erosion and (b) blasting with an abrasive blasting agent. Regarding the contention that "each of the secondary references shows to form openings in the tube surface in situ as the tube is investment cast," Wilkinson et al. relate to a blade or vane structure for a gas turbine and in no manner whatsoever discloses, or suggests, a process for producing half-tubes or tubes for fabricating heat-exchanger tubes for a recuperative waste gas heat exchanger. Moreover, Wilkonson et al. make no mention whatsoever of, e.g., casting a melt in a mold shell one of (a) by applying a vacuum and (b) under excess pressure of an inert gas. The Office Action's reliance on Wunder is apparently based on nothing more than a portion of the sentence appearing at col. 2, line 66 to col. 3, line 1, which states that "[t]he shell body may advantageously be formed as an investment casting." However, Wunder does not otherwise mention the manufacture of the shell body. The Office Action's reliance on Ottenschlaeger is apparently based on nothing more than the sentence appearing at col. 1, lines 52 to 54, which states that "[t]he inwardly disposed hot gas pipe can be produced in an especially cost efficient manner by lost wax (precision) casting or by normal casting." However, Ottenschlaeger does not otherwise mention the manufacture of the hot gas pipe.

Based on the foregoing, it is plainly apparent that the Office Action fails to establish a prima facie case of obviousness, for which the Office bears the burden. Withdrawal of this rejection is therefore respectfully requested.

As regards claims 10 to 21, which ultimately depend from claim 9 and therefore include all of the features of claim 9, it is respectfully submitted that these claims are allowable for at least the reasons set forth above in support of the patentability of claim 9.

As regards the contentions that "it is conventional to use an autoclave to melt out a wax pattern," that "it is conventional to either provide inert atmosphere or vacuum environment for preventing oxidation of molten metal during a casting process," and that "it is conventional to preheat a shell mold prior to pouring molten metal such that to prevent molten metal from premature solidification," Applicant respectfully ***traverses*** and respectfully requests published information and/or an affidavit under 37 C.F.R. § 1.104(d)(2) in support of these otherwise unsupported contentions in the next Office communication.

In view of all of the foregoing, withdrawal of this rejection is respectfully requested.

III. New Claim 26

New claim 26 has been added herein. It is respectfully submitted that claim 26 adds no new matter and is fully supported by the present application, including the Specification. Since claim 26 includes features analogous to features included in claim 9, it is respectfully submitted that claim 26 is patentable over the references relied upon for at least the same reasons set forth above in support of the patentability of claim 9.

IV. Conclusion

In view of the foregoing, it is respectfully submitted that the presently pending claims are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is respectfully requested.

Respectfully submitted,

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